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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,339	01/28/2004	Shane Elwart	FGT 3C7 (81090700)	5227
36865	7590	07/14/2005	EXAMINER	
ALLEMAN HALL MCCOY RUSSELL & TUTTLE, LLP 806 S.W. BROADWAY, SUITE 600 PORTLAND, OR 97205			JOHNSON, EDWARD M	
			ART UNIT	PAPER NUMBER

1754

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,339

Applicant(s)

ELWART ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because the term "said" is used in the last three lines. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-3, 5-7, 10, 12, 16-18, 21, 24-27, 29, 31-33, 36-42, and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartley et al. US 6,482,377.

Regarding claims 1, 16, 21, 31, 41, Bartley '377 discloses a method for removing sulfur from an exhaust stream comprising directing the exhaust to a sulfur trap comprising metal oxide, adsorbing hydrogen sulfide (see column 5, lines 56-63) and reacting with a reducing agent (abstract).

Bartley '377 fails to disclose adjusting an air-fuel ratio based on exhaust temperature.

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the air-fuel ratio to either rich or lean in the method of Bartley because Bartley discloses operation of the method for both lean and rich stoichiometries (see column 5, lines 44-46 and 56-58), which would obviously, to one of ordinary skill, suggest adjustment of the ratio to perform the method at the disclosed rich and lean stages.

Regarding claims 2, 10, 12, 17-18, 42, Bartley '377 discloses sulfur dioxide (see paragraph bridging columns 5-6) and nickel oxide (see column 5, lines 56-59).

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Regarding claims 3, 5, 25-26, 29, 32-33 Bartley '377 discloses forming the metal sulfide (see column 5, line 61) and sulfate (see column 6, lines 20-23).

Regarding claims 6-7, 24, 27, 36-40, 45-46 Bartley '377 discloses oxygen (see column 6, line 11) and running a rich or lean mixture (see column 5, lines 44-45 and 56-57), which can be "defined" in terms of time, cycles, or saturation.

Claims 4, 8-9, 11, 13-15, 19-20, 22-23, 28, 30, 34-35, and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartley '377 as applied to claims 1, 16, 21, 31, 41 above, and further in view of Li US 6,419,890.

5. Regarding claim 4, 19-20, 22, 34, Bartley '377 fails to disclose hydrogen gas.

Li '890 discloses hydrogen gas (see column 8, lines 49-50).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the hydrogen of Li as the reducing agent in the sulfur removal method of Bartley because Li discloses the hydrogen as reducing agent for a process of sulfur reduction (see abstract).

Regarding claims 8-9, 11, 13-15, 23, 28, 30, 35, 43-44, Li '890 discloses hydrogen gas (see column 8, lines 49-50), lean/rich operation at 625-750 degrees Celsius (see column 12, lines 21-26 and 43-49) and 200-400 degrees Celsius (see Fig. 1)

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and Bartley '377 discloses both rich and lean mixtures (see above).

Conclusion


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Strehlau et al. US 6,338,831 discloses a method for removing SOx and hydrogen sulfide comprising contacting the exhaust with nickel oxide and reducing agent (see abstract and Examples).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Edward M. Johnson
Examiner
Art Unit 1754

EMJ